ESTES

WINTER
1984

MODEL ROCKET NEWS

MAGAZINE

DEDICATED TO AND PUBLISHED FOR ESTES ROCKETEERS, AMERICA'S FUTURE IN SPACE

$1.00

ESTES
A DAMON COMPANY

NEW FOR 1985
4 NEW GREAT PERFORMERS!

NEPTUNE SKILL LEVEL 2
• Surface-To-Air-Missile • Over 17 Inches Tall
• Great Flights Up To 900 Feet! • Dramatic Color Scheme
#1935. . . . . **ONLY $5.49**

LASER SKILL LEVEL 1
•Exciting Hi-Tech Decor • Incredible Performance
• Flights Over 1,000 Feet • Over 12 Inches Tall
#1938. . . . . **ONLY $2.49**

BE THE FIRST!!

SUNBIRD SKILL LEVEL 1
• Super Sport Model • Flights Over 1,200 Feet
• Brilliant New Decal Design • 13 Inches Tall
#1936. . . . . **ONLY $2.95**

ASTRO SKILL LEVEL 1
• Super Flier • Altitudes Up To 1,000 Feet!
• Awesome Color Scheme • Nearly 13 Inches Tall
#1937. . . . . **ONLY $2.49**

ESTES MODEL ROCKET NEWS
MAGAZINE

Robert Cannon . . . . . *Editor*
Mary Roberts . . . . . *Asst. Editor*
Charles Webb . . . . . *Photographer*
Rudl Mergelman . . . . . *Graphic Design*
Claudia Smith . . . . . *Typesetter*

©Estes Industries, 1984

Parachute & Size
Kit Decals
Quick-Release Engine Mount
Streamer Recovery
Plastic Nose Cone
Balsa Nose Cone
Die-Cut Balsa Fins or Paper Parts
Plastic Fins or Fin Unit

Unless otherwise stated, all the model rocketry kits advertisied in this magazine are hobby kits requiring assembly. Launch system, engines, glue, and finishing supplies are not included. Recommended for ages 10 to adult. Adult supervision suggested for those under 12 years of age when flying model rockets. Prices subject to change without notice.

MESSAGES FROM LAUNCH CONTROL

Let us be the first to wish you a Merry Christmas! Although it seems a long time away, Christmas will be here before you realize it.

Why not use page 5, 8, and 9 of this issue as a "Wish List" for Christmas? Perhaps this list marked and suitably presented to your local "Santa", can help you receive the rocket kit or starter set that you really want for Christmas!

Thanks for your response to our recent issues. We really appreciated receiving those orders. Getting your orders by mail helps us justify continuing to publish this magazine for you. Keep those orders coming!

Your articles, Idea Box contributions, riddles, letters, and other contributions are appreciated. We will publish as many as we can. Share your best ideas and experiences.

Gary Bronson of Jacksonville, Florida wrote a letter which he sent along with a Product Evaluation Card he received when he recently purchased a Manta Bomber kit. We include these cards in part of the first production run of each kit. The cards are surveys to help us determine your reactions to new products.

Gary reports that *"I am currently up to Skill Level 4, and am really interested in your Skill Level 5 Saturn V moon rocket. However, I can't find it in any stores. Could you please send me any information on this rocket and on how to join your club."*

As we told Gary, any time you want a specific kit or other model rocketry product that your local stores don't carry, order it from us by mail order. That's why we maintain our Mail Order Department. Many stores can't afford the space and/or the inventory cost to carry the full Estes line. When the local stores don't have what you need, order it by mail. Also, the Estes Aerospace Club memberships are sold chiefly by mail. Look at page 10 of your current catalog for full details on joining the Estes Aerospace Club. It is quite a bargain at $6. The only way you can secure the Viper model rocket kit is by joining the EAC. This kit is only one of the many benefits of membership.

Scott Lancaster of Memphis, Tennessee wrote a very interesting letter.

"For reasons beyond comprehension, model rocketry has been poorly publicized and vastly underrated. My first kit was purchased more as a joke between a few friends. However, after the first flight I realized that the joke was on me. Several eyes bulged from their sockets in amazement at the height, speed, and excitement of each new flight. It took nearly half an hour to find the Super Marauder after its maiden voyage.

"Since then I have learned to be more selective in my choice of launch sites. I have also put into orbit every type of insect from a worm to a bumble bee and even a couple of small frogs. (The bumble bee was a most unforgettable experience for one of my eager assistants!) But aside from a couple of improperly packed parachutes and/or protective wadding mishaps, it has turned out to be a rewarding and exciting hobby."

Scott's comments about not enough publicity for model rocketry are all too true. Our hobby is fun. It is exciting. It makes a great demonstration. Yet we are not reaching most people with our message. Perhaps you can help! Please examine this issue for articles on what you can do. Perhaps putting on a demonstration launch in honor of a specific Space Shuttle launch will appeal to you. Maybe starting a model rocket club at school or with your 4-H club sounds like fun to you. Have you tried inviting guests to a club meeting if you already have a model rocket club? While March is a long way away, maybe you and some friends can put on a "Big Deal" launch commemorating Robert Goddard Day in March. (See below for ideas about Goddard Day.)

Maybe you can help a beginner get started in model rocketry. Your expert advice about recovery wadding and parachute packing may help him avoid problems in this area. Your help on that first launch with a live "passenger", be it insect, worm, or otherwise, may prove of great value.

See you at the launch pad!

◆ GODDARD DAY ◆

On March 16, 1926, Robert Hutchings Goddard launched the world's first liquid fuel rocket. This historic flight was made at Effie Ward's farm near Auburn, Massachusetts. This successful test was one of the most important rungs on man's ladder to the stars. As Goddard so well stated it--"The dream of yesterday is the hope of today and the reality of tomorrow."

Goddard's life was a continual dedication to finding better and better ways to reach upward from the surface of the Earth. His many discoveries and inventions were copied in this and other countries. On September 16, 1959, Congress posthumously authorized the issuance of a gold medal in honor of Robert Goddard. NASA's major space sciences laboratory in Greenbelt, Maryland is named Goddard Space Flight Center in his honor.

Robert H. Goddard is one of the true American heroes. His efforts were a major step in man's climb to the stars. Why not honor Goddard with a special rocket launch on Saturday, March 16, 1985? Estes Industries will be happy to supply you with ideas if you will send a self-addressed, stamped envelope to Goddard Day, Estes Industries, Penrose, Colorado 81240.

Perhaps your teacher will let you give a short talk and a launch for your whole class during school on Friday, March 15, 1985.

MODEL ROCKETRY TO BE ON JAPANESE T.V.

This article was taken from a letter from Martin Bowitz, of the L.A. Rocket Society, Fullerton, CA

Our recent demo for Earl's Hobbies at the Bellflower Hobby, Arts and Crafts Show was one of the most unusual demos ever given by the L.A. Rocket Society.

First, a few days prior to the Saturday demo, we received a phone call from a video crew producing footage for a Japanese quiz show where viewers are supposed to guess what's about to happen. As this Japanese crew buzzed about our demo site, they requested various shots of our rack without rockets. Then came a number of close-ups of the cable and rack being prepared. More close-ups were taped of rocket engines. Finally, the rockets were revealed to the camera. Additional detail shots included parachute folding and rocket engine installation. A few of our members were interviewed, including Dean Gaffner, who explained on camera his interest in the hobby, the nature of model rocketry in the USA and the cost and availability of supplies in local hobby shops.

Finally, the rockets were set up on the rack. Our simple demo became a Hollywood Production! By this time, our Japanese guests expected that we could now launch the birds. Unfortunately, there was a problem when one of the park patrol officers asked if we had specific approval from the Parks and Recreation Department, the Fire Department, and the City. We couldn't prove it, so there was to be no launch at Sims Park. This would have been the end of the story, except that a nearby school playground was in unincorporated L.A. County territory. By setting up only a quarter mile away, we were free to launch. To the delight of the video crew, the rockets were at last launched. They quickly found out that model rockets are difficult to follow on camera, and requested another rack full of flights, this time with their camera set up a good 150 feet away.

At the conclusion of our demo, one of our members received an invitation to view the edited copy of the videotape that will hopefully make it to Japanese TV. Now if we could only get local television coverage!

NARAM 26

by Matt Steele

All photos copyright Alan Williams

Matt Steele with his Sandia Sandhawk scale model.

The 26th NAR Annual Meet (NARAM 26) was held on the spacious campus of Allentown, PA. As is tradition, the top competitors from around the country gathered to decide the titles of national champion rocketeers in each category. The competition was tough this year, helped by the thermal activity that the rolling Pennsylvania hills generate. A number of record times were recorded in all age divisions. The large number of competitors in each division made it very tough to place.

There were a number of interesting contest events. One of the most popular was 1/2A Parachute Duration. In this event, contestants are allowed two flights with two models, but they must return one of the models to the launch area. The top time of the meet belonged to Mike Sykos of Somerville, NJ, who returned his first flight of 167 seconds, and then watched his second flight float off into the Allentown sky at over 331 seconds. That was quite a total for 1/2A3-4T engines!

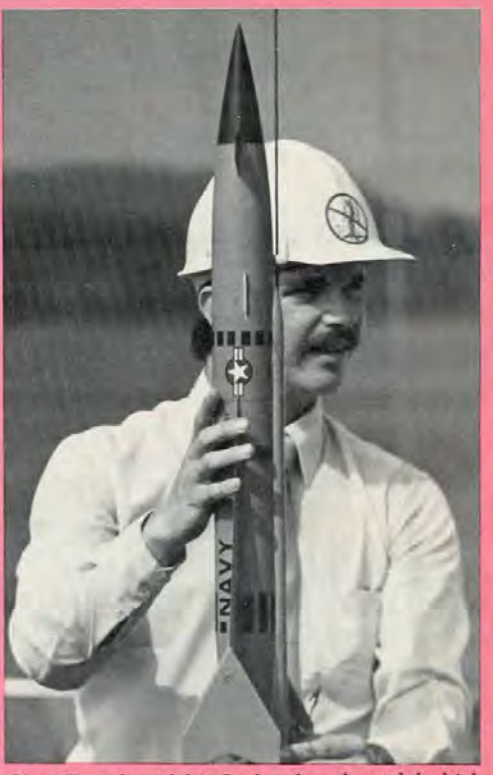
Mary Roberts of Estes examines George Gassaway's radio controlled Space Shuttle.

Mark Bundick takes time out from flying to discuss engine ignition techniques with some spectators.

Streamer duration is also a popular NAR event. At NARAM-26, all models were flown with B engines. These models were mostly constructed from BT-20 and used accordian-folded streamers made of tracing paper. The team of Bob Kaplow and Alan Jones won the meet with impressive flights of 149 and 217 seconds. This was nearly a two minute edge over their closest competitor.

One of the meet's most exciting events was Radio Control Boost Glider. This event is extremely difficult, as the flyers must use the radio to control the high speed boost phase as well as the glide phase. The winners usually have the experience of hundreds of test flights. Phil Barnes, current world champion, dominated the event with his flawless flying. Phil scored nearly ten minutes on his two flights, and showed the form that made him the best in the world. Chris Morgan gave Phil some competition, though, as he scored 890 seconds to become runner-up.

Every NARAM offers all of the model rocket manufacturers a chance to introduce their latest kits and products to the public. NARAM-26 was blessed with fine weather for the manufacturer's demonstration. Estes



Chris Pocock with his Jayhawk scale model which placed 3rd in C Division Scale.

kits filled every launch rod for part of the demo and made many fine flights. The new MX and Titan II sport scale kits, with their clear fin units, caught the attention of everyone in the crowd. Also popular were the Stealth and the X-16 kits.

The races for the national championships were extremely close in all cases. In the under 16 division, Harry Rose of New City, NY won. In the 16-18 age division, last year's runner-up, Larry London of Highland Park, IL was the best in the nation. Jeff Vincent, also last year's runner-up, won the Senior division. The team of George Gassaway and Matt Steele from Alabama won their third team championship. The PULSAR club from New City, NY captured their fourth consecutive championship. Becoming a national champion is a tough job. It takes many long hours of building and flying and improving techniques.

NATIONAL ASSOCIATION OF ROCKETRY

DON'T MISS OUT ON THE FUN! JOIN TODAY

NAR MEMBERS RECEIVE ALL THIS:

- *NAR Sporting License*—Impressive ID card identifying you as an official NAR member with your own registered number!
- *American Space Modeling*—12 issues of the exciting monthly magazine crammed with the latest in rocketry!
- *Coupon Sheet*—Receive free products and samples from many aeromodeling manufacturers.
- *NAR Decals*—Official decals set your models miles above the rest!
- *The NAR Pink Book*—68 page rule book for over two dozen rocketry contests.

ALL NAR MEMBERS ARE ENTITLED TO:

- *$1,000,000 Liability insurance*—Liftoff with added peace of mind in the world's safest hobby!
- *Join NAR Clubs*—Explore a universe of fun with other rocketeers in NAR clubs all over the country.
- *Attend NARAMS*—Spend an unforgettable week at the most exciting event, the NAR Annual Meet, where rocketeers from all over fly and compete!
- *Member Services*—Exclusive free and low cost items, such as manuals, booklets, plans, patches, special offers, and more!

JOIN THE FUN!

NAR

For more information and a membership application write: NAR Headquarters, Dept. E14, 182 Madison Drive, Elizabeth, PA 15037

IGNITERS AND THEIR USE

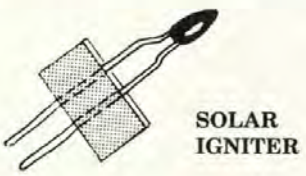
Adapted from an article by Michael Del Vecchio, NAR #18815, in the October 1978 Model Rocket News.

INTRODUCTION

An igniter is a device used to ignite a rocket engine. In model rocketry an igniter element is a strip of resistance wire with or without a coating of a pyrotechnic material on it. In the system it performs like a resistor in an electrical circuit. As electricity passes through micro-clips connected to the igniter, the igniter begins to glow and give off heat. If there is a pyrotechnic material coating the wire, it is ignited, and is the last step in the ignition train.

The Solar Igniter (See figure 1) consists of two special wires bridged by a different wire which is covered by a pyrotechnic material. The Solar Igniter will fire with very little current. (See figure 2.)

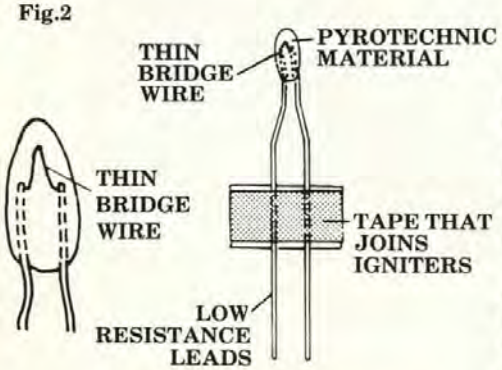
Fig.1



INSTALLATION

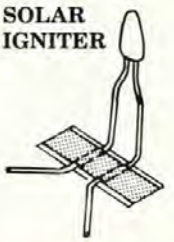
Igniters must be installed so that the coatings or wire itself is touching the dark-colored propellant grain. If the igniter is not touching the grain this could cause a misfire. Heat created by the igniter is not great enough to cross a gap between the igniter and propellant grain--there must be direct contact between the igniter and the propellant.

Fig.2



First separate the igniter you are going to use from the other igniters. With Solar Igniters just tear or cut the paper between any two igniters. Do not remove the paper from the igniter as this may result in cracking the pyrotechnic coating. Then take this cut strip and bend it in half. (See figure 3.) Now take the igniter and push it all the way into the nozzle of the engine, making sure that the igniter is touching the propellant grain. For some engines you may have to push the igniter a long way down, as when using a B8 type engine, so push gently down until the igniter will go no further. Make certain that the igniter's leads are not crossed. If the leads are crossed this can cause a "short" in your launch system and thus a misfire. Next take a 3/4" by 3/4" section of wadding and roll it in a ball. Place this ball in the nozzle of the engine and press it in with a pen cap. Place a small piece of masking tape over the end of the engine. (See figure 4.)

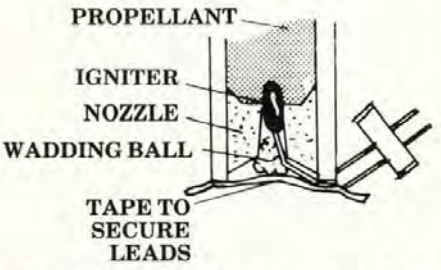
Fig.3



LAUNCHING

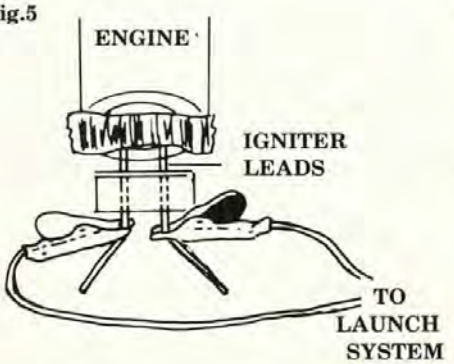
Now comes the climax of all your work--the launch. Three very important factors come into play here: 1) Make sure the wire connections between your micro-clips and launch system are not frayed. There should be no broken strands of wire. If there are broken strands of wire, cut off the micro-clips and reinstall by restripping the wire and attaching the micro-clips again. Use needle-nose pliers for this. Solder the wires in place if possible. 2) Clips should be clean and shiny. If they are not, then clean them by sanding the dirt off them with a small section of sandpaper or an emery board. 3) Place your clips as far up on the igniter (close to the nozzle) as possible. This is to make maximum use of your battery power (See figure 5.)

Fig.4 SOLAR IGNITER



If after all this you still cannot get your rocket off the ground, then check your batteries and launch system. For added information on this refer to your launcher's instructions or Model Rocket Launch Systems, #2811, 70¢, an Estes publication.

Fig.5

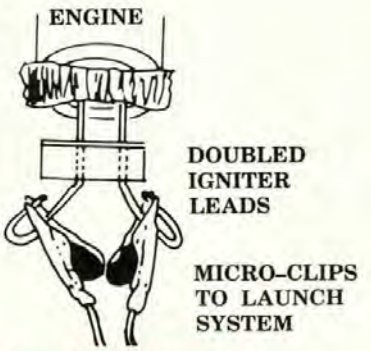


WHAT TO DO IN CASE OF A MISFIRE

If you have a misfire the following procedures should be followed:

1) Remove the safety continuity key and count off ten seconds after releasing the launch switch.
2) Take the rocket off the launch pad and inspect the igniter.
3) If it is broken, replace it with a fresh one.
4) If it has fired, clean the nozzle of any debris with a pen cap or toothpick and replace used igniter with a fresh one.
5) If it has not fired, then read the Launching section of this report again.
6) Begin countdown again.

Fig.6



TIPS ON IGNITION AND LAUNCH SYSTEMS

1) When launcher is not in use, store its batteries in a refrigerator to conserve their power. Before use, take them out and warm them in the palms of your hands.
2) Make certain all connections in your launch system are good without frayed wires. Frayed wires cause a loss in power.
3) Use good batteries. Cheap batteries many times are not cheap because their shelf life is short and thus you may go through many batteries in a flying season. It pays to spend a little more at first and save in the long run.

DO NOT APPROACH THE LAUNCH PAD WHILE THE SAFETY KEY IS INSERTED.

4) If your continuity light flickers on and off, this means one of the clips is probably loose. Remove both clips and double the igniter wire leads over, then replace the clips. (See figure 6.)
5) If you have no light, try the procedure outlined in Step 4. If this fails, check your launch system and batteries.
6) If the continuity light is on before you press the launch switch, but your rocket does not lift off, and when you release the launch switch there is no longer a light, then the igniter probably fired. Follow the misfire procedures.
7) If the light is on before you press the launch switch, but your rocket does not lift off and when you release the launch switch the light is still on, then there is probably a short. (Possibly your igniter wires are crossed.)
8) Be neat, clean, and careful. Remember--safety first!
9) Be sure to follow the HIAA-NAR Model Rocketry Safety Code at all times.

HERE THEY ARE!!!

THE WINNERS
1984 ALIEN CREATURE CONTEST

2ND PLACE
JASON 400X REFRACTING TELESCOPE

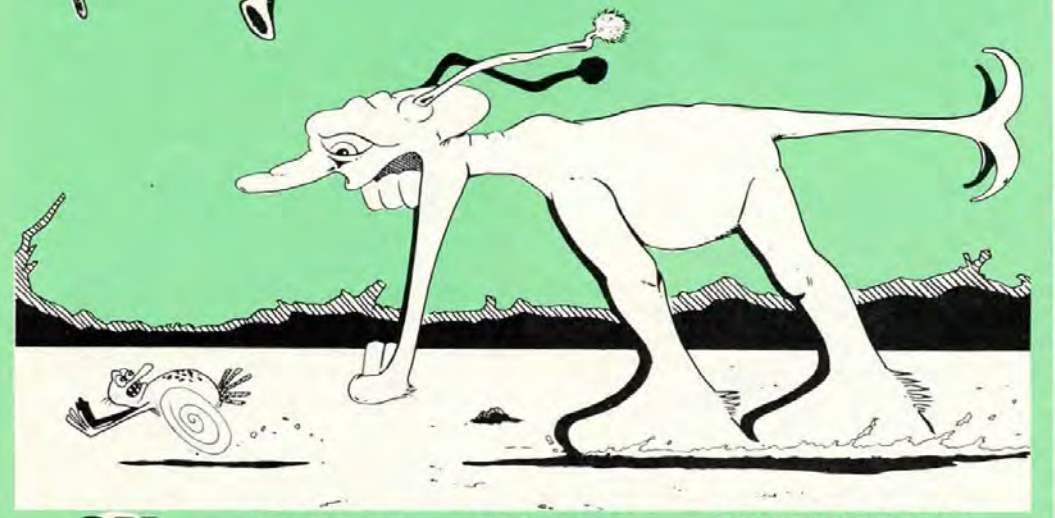
Sam Brown
Age 23
Lewisville, TX

Arialis

2ND PLACE
JASON 400X REFRACTING TELESCOPE

Jody McMurrian
Age 16
Brentwood, CA

Zorn (Bill)



3RD PLACE

Steven Estus
Age 27
Riverside, CA

Heiden-slurk

PANASONIC AM/FM PORTABLE CASSETTE PLAYER

4TH PLACES
MOUNTAIN CREST BACKPACKS WITH FRAMES

Jeff McFarland
San Francisco, CA

Bryan Irvin
Tracy City, TN

Andre Laudadio
Brooklyn, NY

Josh Woltz
Mercersburg, PA

Tony Stover
Hettinger, ND

Patrick McNulty
Green Park, PA

Mike Osterfoss
Eagle, CO

Denis Morrissey
Rome, OH

Thomas Johnston
Brooks, KY

Joe Cooper
Kirkland, WA

SPECIAL NOTE:

We want to personally congratulate the winners and all the contestants. We really enjoyed judging this contest. The decisions were very hard to make.

We regret the readers can't see the total presentations in full-color.

Super artwork and incredible stories!

Thank you,
The Art Staff
Estes Industries

1ST PLACE
COMMODORE 64 HOME COMPUTER

Randy Schofield
Age 14
Springfield, VT

Driktosytockk

3RD PLACE
PANASONIC AM/FM PORTABLE CASSETTE PLAYER

John Martello
Age 18
Orlando, FL

Urshuru Drelexians

3RD PLACE
PANASONIC AM/FM PORTABLE CASSETTE PLAYER

Ross Nehm
Age 14
West Bend, WI

Aquardium

WISH LIST FOR SANTA

MARK YOUR FAVORITES
LEAVE THIS LIST (WITH A FEW SUBTLE HINTS) WITH YOUR LOCAL "SANTA"
GOOD LUCK

☐ Stealth Elite Model Rocketry Outfit

Features: Sleek Stealth fighter--Skill Level 3

- Power Pulse Launch Controller
- Three Estes model rocket engines complete with Solar igniters
- Mini Alpha Book of Model Rocketry
- Recovery Wadding
- Porta-Pad Launch Pad
- Polaroid Pola-Pulse P-100 6 volt battery
- Three C6-5 Estes engines with Solar Igniters

#7611

$29.95 for orders received by March 31, 1985
A $34.15 value!
SAVE $4.20

☐ Mercury Redstone

- 1/35 scale model of Mercury Redstone used to launch Alan Shepard on America's first sub-orbital flight on May 5, 1961. (See page 10)
- Great detailing
- Impressive 28.75 inch size
- Skill Level 5 challenge
- Flies well with Estes C5-3 engines

#1921. . . . **$11.95**

☐ Mean Machine

- The BIGGEST!
- Spectacular flights with Estes D12-5 engines
- This Skill Level 2 model requires 3/16" launch rod
- 78.75 inches (Over 6 1/2 feet!) of BT-60 (1.637" diameter)
- Model Rocketry's biggest kit
- BONUS--3/16" Maxi-Rod FREE ($3.95 value) if Mean Machine Bonus Offer order is received by March 31, 1985 #7612

$12.95 for orders received by March 31, 1985

- **CHRISTMAS BONUS--A package of Estes C6-7 engines --a $3.25 value--FREE with orders for AstroCam 110**

☐ AstroCam 110

- Aerial camera comes complete with Delta II launch vehicle -- Skill Level 2
- AstroCam 110 uses Kodacolor 400 speed 110 film
- Easy to operate camera shoots one full-color photo per flight.
- Get a new perspective on your neighborhood.
- Camera features 1/500th second shutter to freeze scene below as ejection charge deploys the parachute and activates the shutter

#7613 **Only $23.95**
for orders received by March 31, 1985

A real Bargain! Less than the price of Big Foot Launch Control system alone

☐ Sizzler Starter Outfit

- Big 23.5 inch Sizzler model rocket
- This hot rocket is capable of flights to over 900 feet.
- Big Foot Launch Control System included! (Requires 4 alkaline D cells.)
- Three Estes model rocket engines with Solar igniters and wadding included.

for orders received by March 31, 1985 #7614 **$23.95**

Christmas Greetings

FREE ORBITAL TRANSPORT
$10.49 Value SKILL LEVEL 4
Send in your order for merchandise totaling $50.00 or more and receive a FREE Orbital Transport kit. Impressive transport launch vehicle of the future with high-performance piggy-back glider. 18 order #7619

FREE MOSQUITO
99¢ Value SKILL LEVEL 1
Send in your order for merchandise totaling $7.50 or more and receive a FREE Mosquito kit. High performance Mini-Brute. order #7615

FREE ROCKET!

Choose one of these great rocket kits FREE!

FREE MINI SHUTTLE
$4.49 Value SKILL LEVEL 2
Send in your order for merchandise totaling $20.00 or more and receive a FREE Mini Shuttle kit. Sport scale version of space shuttle orbiter. order #7617 S

FREE BIG YANK **$3.49 Value** SKILL LEVEL 1
Send in your order for merchandise totaling $12.50 or more and receive a FREE Big Yank kit. 26.5" Mini-Brute. S order #7616

FREE BIG BERTHA $8.49 Value SKILL LEVEL 1
Send in your order for merchandise totaling $30.00 or more and receive a FREE Big Bertha kit. Great demonstration launcher. 24" big. order #7618 18

These special free offers are available only for orders received through May 30, 1985. Orders must be accompanied by full payment (check, money order, MasterCharge or Visa charge). Qualification for a free kit is based on amount of merchandise ordered and does not include handling charge. If you qualify for one of these free rocket kits, just list the name and special kit number from this page as the last item on your order. List "Free" in the column for total price.

Limit- One Free Rocket Kit Per Order.

These special free rocket offers may not be used with other special offers, bonus coupons, or discounts.

FLIGHT SUPPLIES

Model rocket engines, 3 per package, with Solar igniters

1593	1/2 A6-2	$2.85 per pkg.
1598	A8-3	3.00
1599	A8-5	3.00
1602	B4-4	3.00
1606	B6-4	3.00
1607	B6-6	3.00
1620	B8-5	3.15
1613	C5-3	3.25
1614	C6-5	3.25
1665	D12-0	4.95

OTHER SUPPLIES

2274	Recovery Wadding	$1.49/pkg.
2301	*Solar Igniters	$1.49/pkg.
2233	*Emergency Repair Kit	$2.49 each
2232	AltiTrak	$8.49 each

*See page 16 for Special Sale on these items.

ESTES
SUPER VALUE!
Blast-Off Flight Pak
Parachute Recovery Wadding
Protects Your Parachute From Model Rocket Engine Ejection Charges For Up To Eight Flights.
Solar Igniters
Model Rocket Engine Instructions

A GREAT VALUE

FIN ALIGNMENT GUIDE

- Attach the fins on your rockets, easily, fast, and correctly.
- Fits body tubes up to the mammoth BT-101
- Quickly adjustable to handle three-finned rockets or four-finned rockets.
- A real aid in construction

FIN ALIGNMENT GUIDE #2231 ..... $10.49

BLAST-OFF FLIGHT PAK

- An ideal present--for yourself or for a friend
- 24 Estes model rocket engines
- The most popular engines

Six each: 1/2A6-2 A8-3 B6-4 C6-5
- PLUS THIRTY Solar igniters Recovery Wadding

BLAST-OFF FLIGHT PAK #1672 ..... $16.95

MERCURY REDSTONE LAUNCHED

-Article and photos courtesy of 2Lt Jim Ramsey, 6555th Aerospace Test Group, Cape Canaveral Air Force Station, Florida

Model Mercury Redstone on launch pad at Complex 5/6. Blockhouse in background.

The early morning fog shrouded the Cape, concealing the blazing blue sky above. However, the misty air did little to subdue the excitement of a handful of Air Force officers from the 6555th Aerospace Test Group, Cape Canaveral Air Force Station. They were about to relive an historic event occurring on this date 23 years ago. At 0934 EST on May 5, 1961, Commander Alan Shepard lifted off from launch pad 5 aboard Freedom 7/Mercury Redstone 3 to become America's first man in space. Thanks to several Test Group officers whose fondness for U.S. space history motivated them to stage a reenactment of this launch, the original excitement and atmosphere were recaptured for those who attended this anniversary event.

When the idea was first conceived by 2Lt Jim Ramsey in February 1984, it involved no more than launching a scale model Mercury Redstone from Complex 5/6, part of the Air Force Space museum and recently declared a national historic landmark. A small organization of model rocketry and space history buffs known as the "6555th Solar Guard," chaired by Lt. Lee Carrick, realized the potential was present for a much more significant plan.

Under the direction of Capt. John London, the necessary approval was obtained from NASA to use the old launch complex. Eastern Space and Missile Center (ESMC) Security and Safety also gave the "green light". Lt. Ramsey then constructed a scale replica of Shepard's Mercury Redstone, which was exact in most every detail.

Members of original Freedom 7 launch team with two Mercury Redstones.

Members of the original May 1961 launch team accepted an invitation to attend, including Karl Sendler who was part of the Werner Von Braun Rocket Team brought over from Germany after World War II to design and build U.S. rockets based on German V-2 missile technology. Mr. Sendler worked for NASA as Director of Electronics for the Mercury flight. Other members in attendance included: Walt Kapryan, Chief Spacecraft Project Engineer for the historic flight; Paul Donnelly, Space - craft Test Conductor and now Vice President of United Space Boosters, Inc.; Bob Murkshe, Manager of Range Photography for the Redstone flight; Ray Godfrey, Pan Am Range Support; Norris Gray, Pam Am Fire Chief; Frank Childers, Range Calibration Lab; Ray Clark, Range Liaison Officer; and Ike Rigell, Chief of Electrical Networks.

A special realistic touch was added to the launch, thanks to Capt. Jim Tippins whose electrical expertise allowed him to wire the original firing panel inside the blockhouse so that the original button used to launch Freedom 7, 23 years ago could be used to fire the model's engine. Capt. Tippins routed electrical wiring from the blockhouse to the pad using the original cable tray which carried the firing command to send Shepard on his 15 minute sub-orbital lob into space.

At 0834 on launch day, a 1-hour countdown clock was activated, and an announcement came over the P.A. system on the pad: "T-1 hour and counting". Final preparations were made to the rocket's parachute recovery system and ignitor leads. Electrical checkouts and simulated firings were conducted to verify system readiness for a 0934 lift-off. Capt. Joe Fury obtained a tape recording from the original countdown, and this was broadcast over the P.A. system in synchronization with the countdown clock. At T-4 minutes all were ushered into the blockhouse except for the recovery team and photographers. Karl Sendler stood at the control panel with thumb poised over the firing button. As he and other members inside the blockhouse stared intently through the 12 inch thick, bullet-proof windows at the rocket on the pad, the atmosphere became electric. During the final seconds of the count the blockhouse became silent except for the audible hum of the electronic consoles and blinking lights. You could feel the emotions as each member mentally relived his personal memory of that exact time 23 years earlier. As the sound of "zero" died away from the faded countdown tape, Sendler pressed the button sending 30 volts through 200 feet of cable. An eternity seemed to pass before the rocket's first movement. Silent prayers were answered as the rocket lifted off right on the 0934 mark in a cloud of smoke and fire.

Jim Ramsey presents the Mercury Redstone to Karl Sendler in a post launch ceremony.

Obscured from the view of the misty-eyed, cheering launch team inside the blockhouse, the replica Redstone hurtled past the predicted 500′ maximum altitude in a flufffy white contrail which arced in an eastward trajectory. Following a nominal engine burnout, "Freedom 7" experienced 5

con't on page 15

PUT ON A SPACE SHUTTLE SUPPORT LAUNCH

NASA's Space Shuttle is our country's "truck line" to orbit. Each launch carries people and one or more payloads into space.

Why not have your own Space Shuttle launch on the same day NASA has one?

You can get your friends to help you make a miniature space mission which closely resembles the official one. Have your Space Shuttle prepped and ready. Give the countdown just before launch. Better have your launch about an hour (or whatever is convenient) before or after NASA's so that you can watch the official one on TV.

If you can put on a good launch with an interesting narration, why not see if your teacher will let you put on the Space Shuttle Support Launch for your whole class? This would be lots of fun, and you can tell the class about the real Space Shuttle and about model rocketry and how your mission duplicates in miniature the full-scale NASA launch.

If your demonstration for the class goes over well enough with your teacher, ask him or her to write us a short letter on school stationery telling about the launch. The letter should give your name and address and should tell what you did, who was present for the launch, and when and where the launch was held. We will send a beautiful certificate commemorating your launch to your school for the school's trophy case to the schools which hold the best launches, as evidenced by the letters. If your teacher can enclose one or two good black and white photos with the letter, great! Maybe one of your friends or your Dad can act as a press photographer for the launch. Try to get people in the photo. Perhaps a good shot of you prepping the Space Shuttle or showing it to your teacher or principal would be good.

Good Luck for a great Space Shuttle Support Mission!

Fantastic Flying Models

Tim Berthame
Escanaba, MI

MAVERICK
SKILL LEVEL 1

- High performance sports model
- 16.5 inches of sleep performance
- Streamer recovery to minimize recovery problems after flights to over 1,000 feet
- Flies with A8-3 (first flight), B4-4, B6-4, B8-5, C6-5

MAVERICK #1904. . . **$4.49**

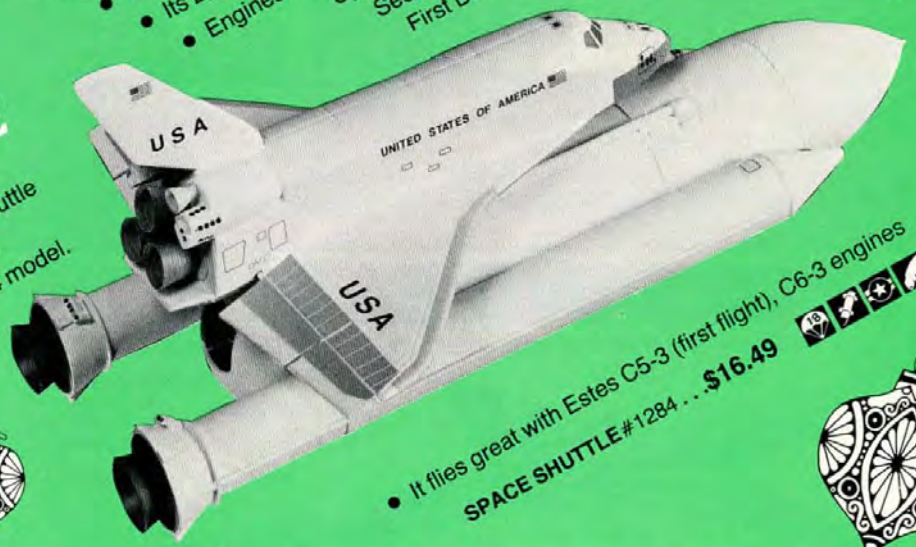
COMANCHE-3
SKILL LEVEL 3

- Tall--41 inches
- Mighty D engine in first booster stage for spectacular lift-offs
- Two powerful boosters drop off as third stage accelerates to incredible height
- Its 2,600 feet capability (about half of a mile) is great
- Engines: Single stage flights--A8-3 (first flight), B4-4, B6-4, B8-5, C6-5
  Upper Stage--A8-5 (first flight), B4-6, B6-6, C6-7
  Second Stage--A8-0 (first flight), B6-0, C6-0
  First Booster--D12-0 (first flight)

COMANCHE-3 #1382 . . . **$6.95**

SPACE SHUTTLE

- The pride of your fleet!
- 1/162 scale model of America's Space Shuttle
- 9.0"Orbiter glides well with its 7.1" wingspan
- Hours of fun building this beautiful Skill Level 4 model. You may be so proud of it that you won't want to launch it.



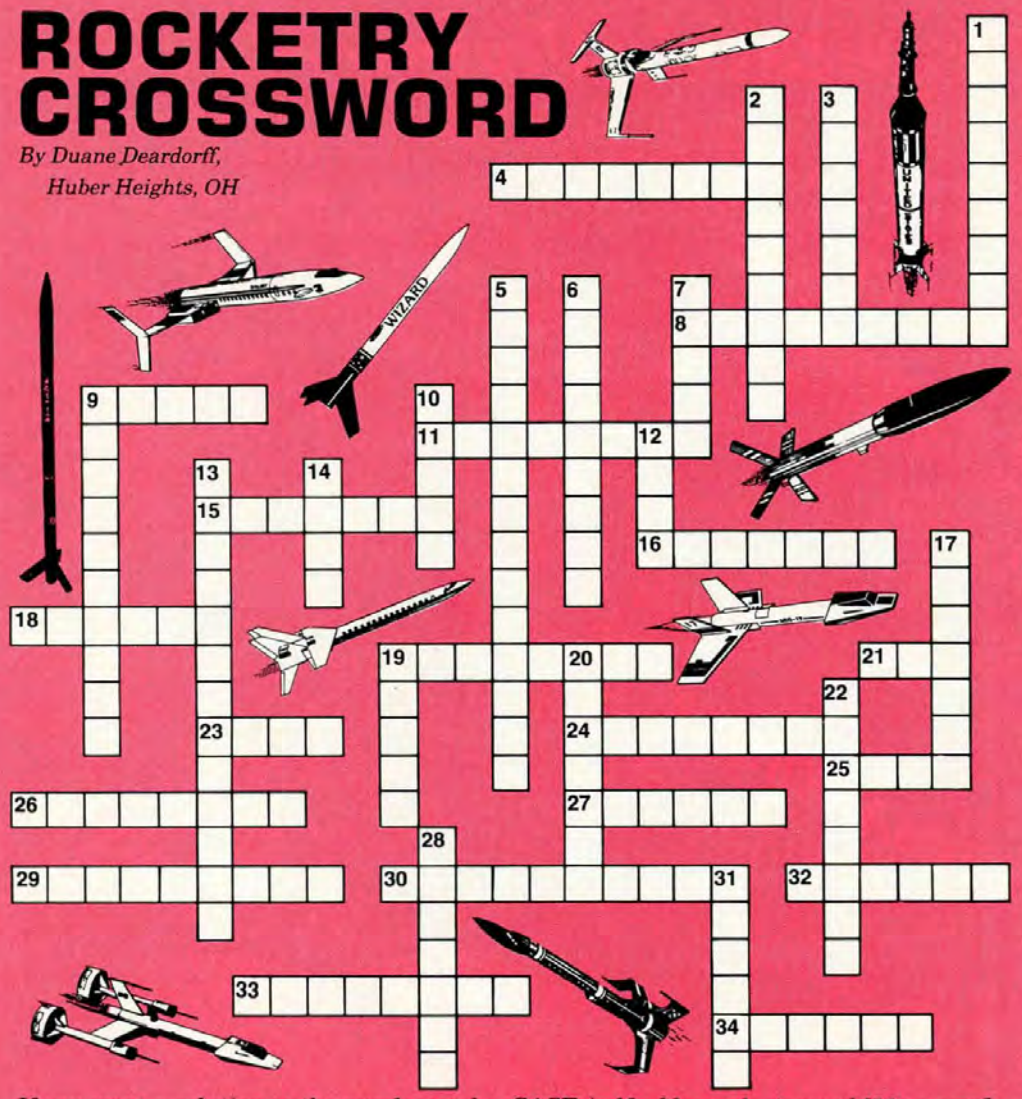
- It flies great with Estes C5-3 (first flight), C6-3 engines

SPACE SHUTTLE#1284 . . . **$16.49**

Jeff Lake, age 10
Ft. Madison, IA

ROCKETRY CROSSWORD

By Duane Deardorff,
Huber Heights, OH



If you want a solution to the puzzle, send a SASE (self-addressed, stamped [20¢ stamp] envelope) to Rocketry Crossword Puzzle Winter 1984, Model Rocket News Magazine, Dept. 107B, Penrose, CO 81240.

ACROSS
- 4 A type of recovery using a ribbon
- 8 Support for rocket
- 9 Engine holder
- 11 Height
- 15 Motors
- 16 Force pulling rocket toward center of planet
- 18 Blast-off
- 19 Final charge of engine, deploys recovery system
- 21 Substance model rockets move through
- 23 Moving air
- 24 Top part of rocket
- 25 Safety _ _ _ _
- 26 Engine is lit
- 27 Type of recovery (Scout)
- 29 Part of rocket used for initial guidance
- 30 The big birds
- 32 "Mass" of rocket
- 33 Way of determining height of travel
- 34 Positive force from engine

DOWN
- 1 Part used to attach nose to body
- 2 Most common type of recovery system
- 3 Type of material sometimes used for nose cones
- 5 Directs exhaust away from launch pad
- 6 Used for main sections of rockets
- 7 A type of recovery (Soaring Eagle)
- 9 The small rockets
- 10 A type of soft wood
- 12 Resisting, negative force
- 13 A type of recovery for lightweight rockets
- 14 Guide rocket in flight
- 17 Model Rocket Capital of the World
- 19 Model rocket leader
- 20 It starts the engine burning
- 22 Safely retrieving the rocket
- 28 Used to keep parachute from melting
- 31 Caution

SOARING EAGLE

SKILL LEVEL 4

- State of the art flex-wing glider
- Launch as a rocket
- Pod ejects and wings unfold at apogee
- Excellent flight times
- Beautiful to watch
- Launch this 23.6" bird with B4-2 (first flight), B6-2, C5-3, C6-3

SOARING EAGLE #1373. . .$8.49

ESTES

FREE CATALOG

1984 ESTES CATALOG

To receive a free 72-page, full-color 1984 Estes Model Rocketry Catalog plus a coupon worth $2.00 toward your next order of $17.50 or more, simply fill in your name and address below.

Age _____
Name _____
Address _____
City _____ State _____ Zip _____

Mail this coupon to: Estes Industries Dept. 107 Penrose, CO 81240

ROCKETRY RIDDLES

Q. Which of the astronauts who landed on the moon had the strongest arm?
Contributed by Wayne Fisher, New Providence, PA

Q. What did the engine say to the igniter?

Q. What did Michael Jackson say to the Maxi-Brute rocket?

Q. What did the launch pad say to the rocket when the rocket made it mad?
Contributed by D. Mark Bagwell, Asheville, NC

Q. What did the astronaut say after eating his first meal on the moon?

Moe: Did you hear the new joke about the sun?
Joe: No.
Moe: I'd better not tell you. It's over your head.
Contributed by Jeff Lake, Ft. Madison, IA

A. Neil Armstrong
A. You burn me up!
A. You're a real thriller!
A. Blast off!
A. The food is good, but the place lacks atmosphere.

DESIGNER'S SPECIAL

- Develop your own R & D program
- Parts assortment with over 70 items
- Body tubes--8 from BT-5 to BT-60
- Nose cones--from BT-5 to BT-60
- Fin material--6 sheets of fin stock
- Parachutes--from PK-10 to PK-24
- Recovery equipment--12 items
- Miscellaneous--32 items to help you create those great custom birds

Big savings over same items purchased separately

#1463. . . $22.95

IN MEMORIAM

Lonnie Reese, President of Flight Systems, Inc., passed away in a car accident on Saturday, September 8, 1984.

Dedicated to the advancement of model rocketry, Lonnie was always a good competitor and a close friend to many of us.

A bachelor at 44, Lonnie enjoyed jet boat racing and playing in a country western band.

Lonnie will be fondly remembered by friends, industry colleagues and model rocketeers for a long, long time.

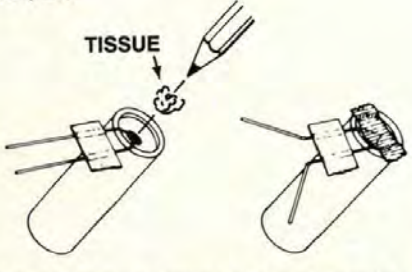
By Dane Boles, Director of Marketing, Estes Industries.

idea box

PARACHUTE STORAGE IDEA

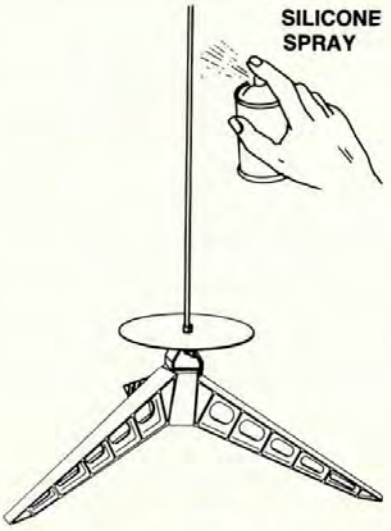
Suspend chutes upside down from hangers to keep from wrinkling and creasing.

Kip Ewing
Tulsa, OK



Before securing an igniter with tape, tear off a small corner of a tissue, wad it up and insert it on top of the igniter in the engine nozzle with the point of a pencil. This will securely hold the igniter and greatly reduce the chance of a misfire.

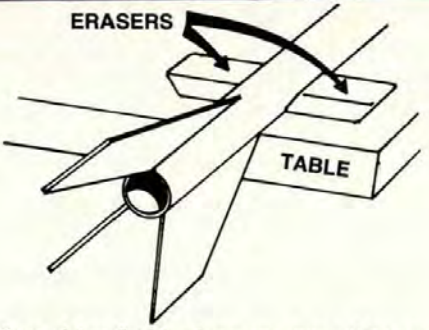
Brett Pantalone
Ravenna, OH



Spraying silicone spray on your launch rod will make your rocket slide up it easier, producing higher flights.

Jesse Frolek
Lidgerwood, ND

SEND US YOUR IDEAS FOR CONSIDERATION AND POSSIBLE PUBLICATION.



When gluing fins in place, use two rubber pencil erasers to keep the rocket from changing position and shifting the fins into the wrong direction.

Sean Whelan
Hollidaysburg, PA

When you buy a rocket don't throw away the package. You can use the plastic bag to store all sorts of small parts in. The cardboard can be used to design fins & wings on, cut out and trace to balsa.

Don't throw away those bent launch rods. They can be used to stuff recovery wadding down those tall birds.

You can use a tackle box as a range box. You can even buy a chair with a tackle box built in under it, if you like to sit and fly rockets.

You can make cuts around a body tube a lot straighter if you mark the place to cut with a pencil, then on the mark, wrap a piece of paper around the tube several times keeping the edge by the mark lined up.

Louis J. Jiardina **Marion,IL**

How To Build A Better Model Rocket

By Tim Berthame, Escanaba, MI

Flying model rockets is fun. A rocket that has been built carefully will fly well, and it will last a long time. A rocket that has been built poorly will not fly well.

Anybody can rush and hurry to get their rocket done, but a true craftsman takes his time. He builds step-by-step, following the instructions. Take balsa fins, for example. They can be glued on the body tube and then painted in a hurry. However, a good job includes sanding and the use of sanding sealer. Also, when the fins are glued on, you put on glue reinforcements ("fillets") to make the rocket look better and perform better.

I have built a lot of Estes model rockets ranging from the Skill Level 1 Scout right up to the Skill Level 5 Mercury Redstone. I have found out that a quickly done, "in-a-rush" model not only flies poorly, but also looks sad. I have also had the joy of seeing a cardboard tube, some balsa wood, some patterns, and a cone transformed into a really beautiful creation that not only gives top performance but which lasts and lasts.

What I've been trying to tell you all boils down to this--What you put into your model is what you get out of it.

CENTURI SURE-SHOT IGNITERS

Our warehouse crew has discovered a stock of the original Centuri Sure-Shot igniters.

We can now offer a package of 12 Sure-Shot igniters at a special savings.

Make sure your batteries are good if you use these Sure-Shot igniters, as they require more amperage than Solar igniters.

Original Centuri Sure-Shot Igniters
#7620. . . . $1.00 per package
ACT NOW! while supply lasts.

COLOSSUS! SKILL LEVEL 2

Huge Maxi-Brute

- Over 4 feet long (51.25 inches) and over 2 1/2 inches wide!
- Fast assembly
- Magnificent lift-offs with D12-3

#7621. . . . . ~~$26.50~~

NOW ONLY $13.25

Special sale price of $13.25 valid only as present supply lasts. Get your order in NOW!.

BONUS-- A package of three D12-3 Estes model rocket engines FREE with Saturn V orders received by March 31, 1985

SATURN V SKILL LEVEL 5

- The ultimate model rocket!
- MASSIVE 43 1/2 INCHES TALL
- 1/100 scale model of our famous Moon Rocket
- Make this great scale model the pride of your fleet!
- Impressive lift-off and spectacular recovery with three parachutes!
- Powered by a single Estes D12-3 or a cluster of three C5-3 or C6-3 engines

#7622 ONLY $43.95

LIFT-OFF ASSORTMENT

An assortment of parts to build an all purpose fleet

Over 40 separate items to help you build rockets

Unleash your imagination! Test your theories! Design, build, stability test, then fly new rockets!

Make your own fleet of distinctive model rockets using these parts:

NOSE CONES
1 BNC-30C
1 BNC-30D
1 BNC-30E
1 BNC-30M
1 BNC-30N

BODY TUBES
5 BT-30

FIN STOCK
3 BFS-20
2 BFS-30

RECOVERY EQUIPMENT
1 PK-8A
2 PK-12A
1 SM-1 Streamer material
1 TD-2 Tape discs
5 SC-1 Shock cord
1 SLT-1 Shroud line
5 SE-2 Screw eye

MISCELLANEOUS
1 Alpha Book of Model Rocketry
1 PP-2 Fin patterns
1 PP-3 Fin patterns
5 LL-2A Launch lug
5 EB-30A Engine blocks

A BARGAIN!

Lift-Off Assortment #7623 . . . . . $7.00

DESIGN OF THE MONTH CONTEST WINNERS

JUNE 1984 WINNERS: James Iley, Haskell, TX (Sojourner). **Andrew Layden,** Glastonbury, CT (Triceratops). **Robert Prinzivalli,** San Diego, CA (Viking Lander). **Daryl Kamm,** Orlando, FL (Kraken). **Matt Haag,** Phoenix, AZ (Callisto). **Craig Christopherson,** Eau Claire, WI (C.C.C.P. Vanguard). **HONORABLE MENTION: Jake Olson,** Palisade, CO. **Jeff Hartkoff,** Schofield, WI (U.S.S. Ervon). **David Bostwick,** Binghamton, NY (Explorer). **Adam Ince,** El Toro, CA (Mega Mosquito). **Clifford Hagner,** Warren, MI (Laser 3). **Gregg and Derek Anderson,** Fairview, UT (Stellar Express). **Louis J. Jiardina,** Marion, IL (Sweedish Dragon). **Wendy Jiardina,** Marion, IL (Talos). **John Luaces,** Palo Cedro, CA (Astro Blaster). **Billy Jacobs,** Escondido, CA (Star Burst). **Jeff Lake,** Ft. Madison, IA (Titan). **Russell Eckman,** Haxtun, CO (DXF-86 Scorpion Bomber).

JULY 1984 WINNERS: Boyd Multerer, Rubicon, WI (Intersellar Raider). **Greg Carr,** Ferndale, MI (H.M.S. Discovery). **David Maurer,** Wyomissing PA, (Executioner). **HONORABLE MENTION: Bill Constantino,** Belmont, MA (Spike). **William R. Strunk,** Fleetwood, PA (Screaming Eagle). **Jim Catino,** Shamokin, PA (Payloader). **Paul Specht,** Conneaut, OH (Spider). **Robert Conboy,** San Leandro, CA (Xavier Class Fighter). **David A. Snell,** Butte, MT (Bushmaster). **J. Roger Greenwood,** Holliston, MA (High Fly). **Jeff Lake,** Ft. Madison, IA (Iowa). **Joseph W. Solinski,** Carpentersville, IL (Nimbus 9). **Brian Fuchs,** Chatsworth, CA (Chameleon II). **Marvin J. Hooley,** Corbett, OR (The H-1). **Dean Pilato,** Warren, MI (Arrow).

AUGUST 1984 WINNERS: Albert Wellman, Santa Rosa, CA, (Computer Assisted Design). **Douglas Kirk,** Canyon Lake, TX (Organ Pipe Transporter). **John Laskowski,** Houston, TX (Black Knight). **Jeff Hartkopf,** Schofield, WI (U.R.S. - Universal Rescue Ship). **Peter W. Kodis III,** North Dartmouth, MA (Asroc (Anti-Submarine Rocket)). **Wendy Jiardina,** Marion, IL (StarLab Yorktown). **HONORABLE MENTION: Louis S. Jiardina,** Marion, IL (Jupiter). **Wendy Jiardina,** Marion, IL (X-29). **Louis Jiardina,** Marion, IL (Russian Fighter Transport). **Charles Byrd,** Naples, FL (Charon II). **Jake Olson,** Palisade, CO (No Name). **Dennis Perkinson,** Clinton, TN (Atlas). **J. Roger Greenwood,** Hollistion, MA (SEG-1). **Teddy Hull,** Birmingham, AL (Parachute Rigging). **Billy Jacobs,** Esondido, CA (Laser Fire). **Scott Cole,** Lakeview, MI (Coleps).

con't from page 10

seconds of weightlessness as it silently coasted to apogee. The capsule separated with an audible "pop" from the parachute ejection charge, and both capsule and booster floated eastward under separate orange and white canopies. A light easterly wind carried the drifting pair over Complex 5/6. What a spectacular view of the Cape one might see from the rocket's vantage point or imagine Shepard's elation as he peered through his capsule periscope from about 100 miles in space and yelled into his microphone, "What a beautiful view!" A combination of high altitude chute deployment and the ocean breeze caused the capsule and booster to drift outside the fenced boundaries of Complex 5/6. The recovery team of 2 Lt. Mike Caylor and Mr. Mike Olive scrambled across the large field adjacent to the pad to keep sight of the capsule and booster as they disappeared into a densely wooded swamp. Their quick actions and teamwork allowed them to pinpoint the locations of the rocket components and recover them perfectly intact except for one broken parachute shroud line on the Mercury capsule. Following the long walk back to the blockhouse, members enjoyed a specially prepared anniversary cake amid handshakes and congratulations on a successful mission. Everyone then gathered outside near the rear blast door to watch the presentation of the first rocket launched from pad 5 in over 20 years. Lt. Ramsey presented his immaculate replica to Karl Sendler who had pressed the firing button just moments earlier. Had it not been for the scorch marks on the model's stabilization fins, Mr. Sendler would not have believed that this was the rocket that had just flown. "This rocket has an advantage over the Mercury Redstone your team launched 23 years ago in that our booster is now recoverable," joked Lt. Ramsey. Sendler gave a moving acceptance speech in which he spoke of uncertainties and fears in the early space effort of sending a Mercury capsule into space with a precious human cargo for the first time. "Everybody was excited and a little bit scared, wondering how a man could have the guts to sit on top of the firecracker," he said.

The successful reenactment allowed the former NASA greats to step back into time and relive a brief moment in history in which they sowed the seed for later Apollo moon shots and today's Space Shuttle program. For the 6555th Aerospace Test Group officers it was a chance to share experiences from a time when they were still too young to appreciate the significance of this monumental undertaking.

As Shuttle missions become more routine, commemorative events such as this preserve for future generations a sense of understanding of how the U.S. Space Program matured from infancy to the incredible sophisticated technology of today. As the last car drove away from old Complex 5/6, departing glances were accompanied with thoughts of a 25th-silver anniversary. Perhaps Alan Shepard himself will attend, who knows? Whatever transpires, it promises to be a very memorable event indeed!

SURVEY

We need your help. Please answer these questions. The information you provide will help us in our planning to meet your needs.

Please mail this questionnaire back to us before December 31, 1984. Thanks!

1. Type of rockets I like best
   - A ( ) Sport Fliers
   - B ( ) Futuristic
   - C ( ) Multi-stage
   - D ( ) Scale
   - E ( ) Gliders
   - F ( ) Large
   - G ( ) Small
   - H ( ) My Own Designs
2. My favorite model rocket kit in the Estes catalog

   _____
3. I think that your kit instructions are
   - A ( ) Clear
   - B ( ) OK
   - C ( ) Confusing
4. I usually build rockets
   - A ( ) Using the pictures only
   - B ( ) Using the pictures and sometimes the printed instructions
   - C ( ) Reading the complete instructions
5. How long is it from the time I buy a rocket until it is flown?
   - A ( ) Usually same day
   - B ( ) Usually next day
   - C ( ) Within one week
   - D ( ) One to two weeks
   - E ( ) Over two weeks
6. Number of model rocket kits I have built
   - A ( ) 0
   - B ( ) 1
   - C ( ) 2-5
   - D ( ) 6-10
   - E ( ) 11 or more
7. Number of times I have launched a model rocket
   - A ( ) 0
   - B ( ) 1
   - C ( ) 2-5
   - D ( ) 6-10
   - E ( ) 11 or more
8. I have my own launcher
   - A ( ) Yes
   - B ( ) No
9. The next model rocket kit I want is

   _____

10.-12. My favorite parts of Model Rocket News Magazine are:
(Please rate your three favorites, in order 1,2,3)
   - A ( ) Stories about US space program
   - B ( ) Cartoons
   - C ( ) Ads and special offers
   - D ( ) Technical articles
   - E ( ) Free Plan
   - F ( ) Idea Box
   - G ( ) Crossword puzzles
   - H ( ) Wordsearch puzzles
   - I ( ) Contest results
   - J ( ) Other _____
13. I learned about model rocketry through
   - A ( ) An advertisement
   - B ( ) School
   - C ( ) A friend
   - D ( ) A store
   - E ( ) 4-H
   - F ( ) Boy Scouts
   - G ( ) A gift
   - H ( ) Other _____
14. I buy my model rocket kits and engines
   - A ( ) At local hobby shop
   - B ( ) At local discount store
   - C ( ) At local toy store
   - D ( ) By mail order from Estes
15. My favorite school subjects are
   - A ( ) English
   - B ( ) History (Social Studies)
   - C ( ) Science
   - D ( ) Math
   - E ( ) Other _____
16. I usually get my rockets to fly
   - A ( ) First Attempt
   - B ( ) Second attempt
   - C ( ) After several attempts
17. How many of my friends build model rockets?
   - A ( ) None
   - B ( ) 1-3
   - C ( ) 4 or more
18. I usually have about this much money to spend each week
   - A ( ) Under $2
   - B ( ) $2-5
   - C ( ) $5-10
   - D ( ) $10 or more
19. Magazines I read regularly are

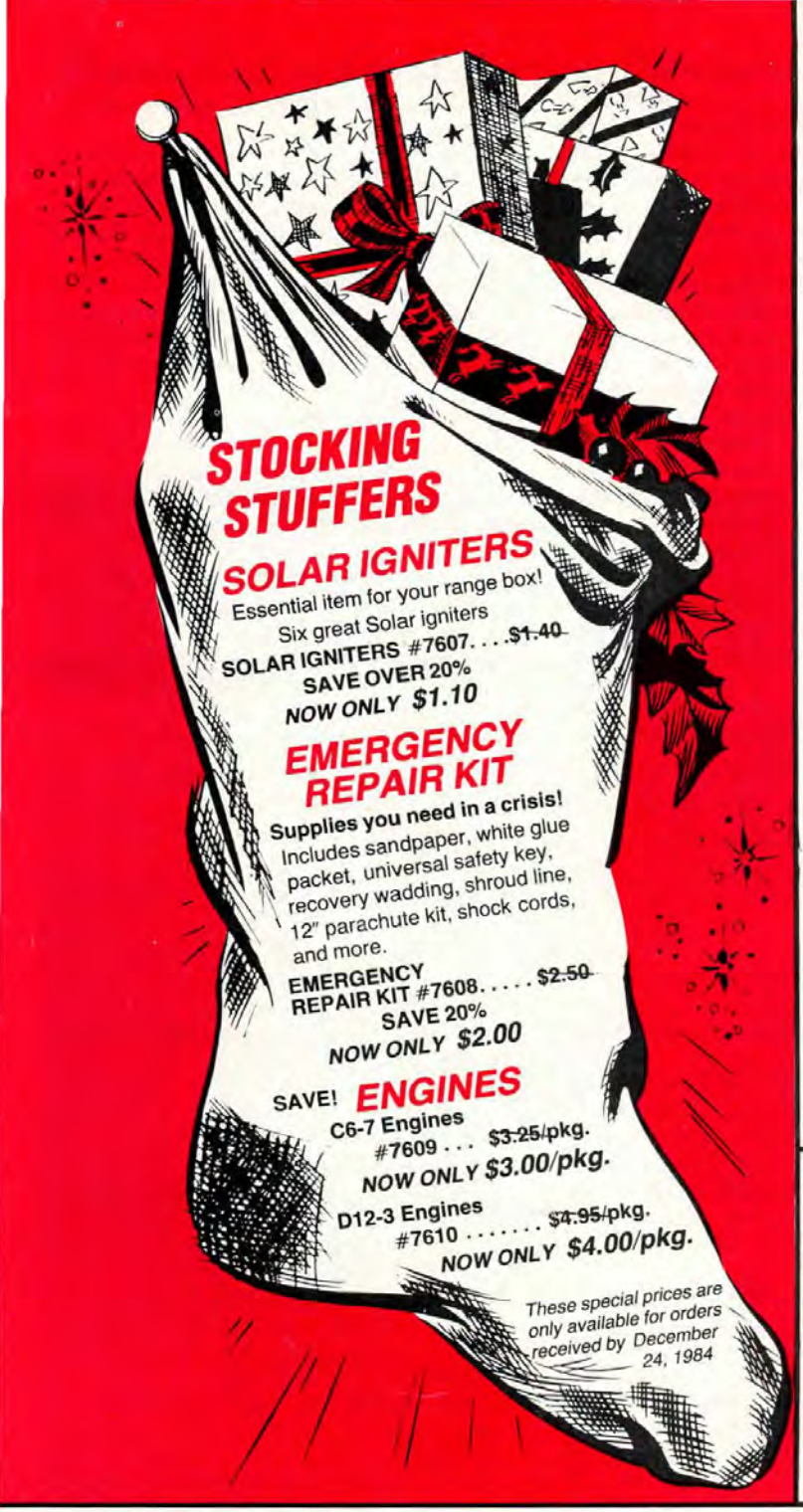
   _____

   _____
20. My favorite characters are
   (Real, TV, comic, movie, etc.)

   _____

   _____
21. My age is ____ years old.
22. I have a computer (microcomputer)
   - A ( ) Yes
   - B ( ) No
   - C ( ) No, but I can use someone else's regularly
     - D ( ) School
     - E ( ) Friend
     - F ( ) Other _____
23. My favorite hobbies are
   - A ( ) Reading
   - B ( ) TV
   - C ( ) Fishing or hunting
   - D ( ) Sports
   - E ( ) Photography
   - F ( ) Collecting _____
   - G ( ) RC _____
   - H ( ) Slot car racing
   - I ( ) Model railroading
   - J ( ) Kites
   - K ( ) Model rockets
   - L ( ) Other _____
24. Comments _____

   _____


STOCKING STUFFERS
SOLAR IGNITERS
Essential item for your range box!
Six great Solar igniters
SOLAR IGNITERS #7607. . . . $1.40
SAVE OVER 20%
NOW ONLY $1.10
EMERGENCY REPAIR KIT
Supplies you need in a crisis!
Includes sandpaper, white glue packet, universal safety key, recovery wadding, shroud line, 12" parachute kit, shock cords, and more.
EMERGENCY REPAIR KIT #7608. . . . . $2.50
SAVE 20%
NOW ONLY $2.00
SAVE! ENGINES
C6-7 Engines
#7609 . . . $3.25/pkg.
NOW ONLY $3.00/pkg.
D12-3 Engines
#7610 . . . . . $4.95/pkg.
NOW ONLY $4.00/pkg.
These special prices are only available for orders received by December 24, 1984

DUNE™*

Estes Industries has secured the exclusive franchise for flying model rockets based on the spectacular science fiction movie DUNE™*. This epic feature will premiere in December 1984.

Be the first in your neighborhood to build and fly the new Guild Heighliner rocket from the movie!

DUNE™* Starter Kit includes:
New Guild Heighliner model rocket kit
Launch pad
Electrical ignition system
Model rocket engines
Recovery wadding

Skill Level 1

DUNE™* STARTER KIT #1438 . . $19.95

(Requires 6 or 12 volt lantern battery and glue - Not included.)

©1984 DINO DE LAURENTIIS CORPORATION. All Rights reserved.
**A trademark of Dino De Laurentiis Corporation and licensed by Merchandising Corporation of America, Inc.*

◆ KIT BASH CONTEST ◆

First Prize - $150 merchandise certificate

Twelve more prizes!

Don't forget to send in your entry in time to beat the December 31, 1984 entry receipt deadline. Details of the contest were in the Fall 1984 Model Rocket News Magazine.

Think what you could build this Winter with that first prize!

Enter NOW!

ESTES

A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

BULK RATE
U.S. POSTAGE PAID
ESTES INDUSTRIES

260

RODNEY BROWN
2059 MAPLEWOOD LANE
LIMA OH 45806

Be Sure To Enclose Special Offer Coupons

Place
Stamp
Here

ESTES INDUSTRIES
"Model Rocket Capitol of the World"
PENROSE, CO. 81240 USA

HOW TO ORDER — FOLLOW THESE EASY STEPS FOR BEST SERVICE

IMPORTANT

Estes model rocketry products are recommended for ages 10 to adult. Adult supervision is suggested for those under 12 years of age when flying model rockets.

This order form replaces all previous order forms. Please be sure that you use the correct and full catalog number for each item when you order. All prices are subject to change without notice. WHEN SENDING ORDER BE SURE TO GIVE ZIP CODE IN YOUR ADDRESS.

POSTAGE

Estes Industries ships all retail orders POST-PAID in the U.S. by regular land mail or UPS.

PAYMENT ON ORDER

Full payment must accompany all orders. Please send all remittances by either check or money order, both for your protection and our convenience. If you do send currency, be sure your envelope has sufficient postage, is properly sealed, and is addressed correctly to assure delivery. Coins should be attached to a separate sheet of paper, not to the order blank. Use a single strip of masking tape to hold the coins in place. Avoid the mailing of coins, as they are easily lost in the mail. We cannot assume responsibility for the loss of coins, currency, or orders in the mail. Remember to include sufficient funds with your order. For your protection, we do not ship orders C.O.D. Proper attention to these details will result in speedier service for you.

Your order may, for various reasons, have to be shipped in more than one package. If all of your order does not come at the same time, please be patient and give the balance of the order time to arrive.

NOTE: All foreign orders require additional postage. Please write for more information on postage and mailing restrictions.

PRIORITY MAIL (Air Mail) SERVICE

While Estes Industries specializes in fast service, sometimes extra speed is necessary. The Post Office offers a service called Priority Mail which gives packages and parcels the fastest handling and transportation possible. PRIORITY MAIL CANNOT INCLUDE MODEL ROCKET ENGINES, AS ORDERS CONTAINING ENGINES CAN ONLY BE SHIPPED BY PARCEL POST OR UPS AT THIS TIME.

For other items on which you desire extra rapid delivery, additional postage may be included for Priority Mail. Shipping weights are given on all items. Total up the shipping weights on the items you are ordering, then find the amount to allow for extra postage on the chart below. When your order is processed you will be charged only for the difference between regular parcel post and priority mail - any excess will be refunded.

WEIGHT (UP TO BUT NOT OVER) Allow →		10 oz. to 1 lb.	2 lbs.	3 lbs.	4 lbs.
		$ .80	$1.13	$1.51	$1.93
5 lbs.	6 lbs.	7 lbs.	8 lbs.	9 lbs.	10 lbs.
$2.48	$3.13	$3.73	$4.33	$4.93	$5.53

For orders 9 ounces or less, send 9¢ per ounce.

"Estes is an equal opportunity employer."

903028D

ESTES. A DAMON COMPANY

FULL ONE YEAR WARRANTY

Your Estes product is warranted against defects in materials or workmanship for one year from the date of the original purchase. Any Estes product which, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period will be repaired or replaced, at Estes' option and at no charge to you, provided it is returned to Estes with proof of purchase.

This warranty does not cover incidental or consequential damage including injury or damage to persons or property caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For repair or replacement under this warranty, please return the defective part of your Estes product with proof of purchase to: Estes Industries, Customer Service Department, Penrose, Colorado 81240.

TEAR HERE AND INSERT IN ENVELOPE

Thank you for ordering

TEAR HERE AND INSERT IN ENVELOPE

FOLD HERE AND SEAL

HAVE YOU ORDERED EVERYTHING YOU NEED? IS YOUR MONEY ORDER OR CHECK ENCLOSED? DID YOU CHECK YOUR MAILING ADDRESS AND ZIP? DID YOU FILL IN ALL CREDIT CARD INFORMATION?

–HELP US TO SERVE YOU BETTER–

Your comments will assist us in providing you with better service and even more exciting products.

1. What types of scale models would you like Estes to produce?

_____

_____

2. Do you prefer ☐ Large ☐ Small size models?
3. Do you think Estes kits are generally ☐ Easy, ☐ Average or ☐ Difficult to assemble considering their recommended skill level?
4. Are Estes kit instructions easy to follow? ☐ Yes ☐ No
5. Would you prefer more plastic parts for simpler assembly and better detail? ☐ Yes ☐ No
6. What Skill Level of kits do you prefer to build?
   ☐1 ☐2 ☐3 ☐4 ☐5
7. What three types of model rockets are your favorites?
   ☐ Single Stage ☐ Scale Model ☐ Boost Glider
   ☐ Sport Flier ☐ Futuristic Design ☐ Maxi-Brute
   ☐ Mini-Brute ☐ Multi-Stager
   ☐ "D" Powered ☐ Payload
8. How did you become interested in model rocketry?
   ☐ A friend ☐ Film ☐ Gift
   ☐ School ☐ Magazine ad ☐ Hobby shop
   ☐ Rocket club ☐ Saw a launch ☐ Department store
   ☐ Article ☐ Comic book
   ☐ TV
   ☐ Other _____
9. What is your favorite type of scale model?
   ☐ Military Scale ☐ NASA Scale ☐ Sounding Scale
10. What product other than model rockets would you like to see Estes produce:

☐ Electric RC Cars	☐ Kits	☐ Pre-Assembled
☐ Powered Boats	☐ Kits	☐ Pre-Assembled
☐ RC Airplanes	☐ Kits	☐ Pre-Assembled
☐ U-Control Airplanes	☐ Kits	☐ Pre-Assembled
☐ Solar Kits		☐ Construction Sets
☐ Slot Racing	☐ HO Scale	☐ 1/32nd Scale

☐ Other _____

11. Age_____ Grade_____
12. ☐ Male ☐ Female

—THANK YOU FOR YOUR ASSISTANCE—

Send a Friend a Catalog!

☐ Please rush a "New" ESTES Model Rocketry Catalog to:
Friend's Name _____
STREET _____
CITY _____
STATE_____ ZIP_____ Dept. 50N

☐ Please rush a "New" ESTES Model Rocketry Catalog to:
Friend's Name _____
STREET _____
CITY _____
STATE_____ ZIP_____ Dept. 50N

ESTES ORDER FORM

	Cat. No.	Qty.	Product Description	Unit Price		Total	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12	#1447	☐	EAC Membership Kit				

☐ I am an "Active" EAC Rocketeer.

HANDLING CHARGES	
Order Amount	Handling Charge
$0 to $15.00	$1.50
$15.01 to $30.00	$2.00
$30.01 and UP.	$2.50

PLEASE PRINT PLAINLY IN INK
(If additional space is needed use a separate sheet of paper.)

Merchandise Total

Priority Postage (If Desired) / State Sales Tax 3% (Colo. Residents Only)

Add Handling Charge

Amount This Order

Add Balance Due Estes Ind. From Previous Order

Subtract Previous Order Credit (Credit Slip(s) Enclosed)

TOTAL PAYMENT ENCLOSED

ORDER DATE
EFFECTIVE 12-1 83

Please Print Name And Address Below Unless It Appears On Label Correct Address On Label If Necessary.

Your Name_____

Address_____ 260 262 263 264 400

City_____

State_____ Zip Code_____

Phone ( ) _____ Birth Date__/__/__
mo. day yr

For Estes Use Only

1 _____ EAC _____

2 _____ 3 _____

MOVED RECENTLY? If you have moved since your last order please give us your old address.

NAME_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____

New **CHARGE YOUR ORDER!** VISA master charge

You may now charge your Estes order on your VISA or Master Charge Card providing your order is $10.00 or more. Simply fill in the information below.

VISA Card No. ☐☐☐☐-☐☐☐-☐☐☐-☐☐☐

Master Charge Card No. ☐☐☐☐-☐☐☐☐-☐☐☐☐-☐☐☐☐

Expiration Date_____

Card Holder's Signature_____
(As it appears on card.)

ESTES INDUSTRIES, PENROSE, COLO. 81240 *($10.00 Minimum Order For Credit Card Orders.)*